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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|--|---|
| 10/540,471 | 06/23/2005 | Hiroshi Kanai | R0501T | 2972 |
| <div>7590 12/13/2007</div> <div>Yusuke Takeuchi Takeuchi & Takeuchi Suite 202 200 Daingerfield Road Alexandria, VA 22314</div> | | | | |
| | | | <div>EXAMINER</div> <div>STIMPert, PHILIP EARL</div> | |
| | | | <div>ART UNIT</div> <div>3746</div> | <div>PAPER NUMBER</div> |
| | | | <div>MAIL DATE</div> <div>12/13/2007</div> | <div>DELIVERY MODE</div> <div>PAPER</div> |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/540,471

Applicant(s)

KANAI ET AL.

Examiner

Philip Stimpert

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the multiple valve bodies associated with a single suction valve of claim 1 (ln 14) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

1. The disclosure is objected to because of the following informalities: there are many errors in spelling and grammar throughout the application, for example, many instances of the word "fleon," which the examiner believes to be a misspelling of "freon." A thorough review of the specification to identify further errors and correct them is in order.

Claim Objections

2. Claim 1 is objected to because of the following informalities: line 19 of the claim recites "the number of rotations of the swash plate." Taking applicant's Fig. 9 into consideration, the examiner believes that the quantity which the claim intends to reference is revolutions per minute, a rate of rotation rather than a count of rotations. Appropriate correction is required.

3. Claims 3-4 are objected to because of the following informalities: both claims recite a clutchless compressor coupled to a motor vehicle engine "without via a clutch." Appropriate correction is required. However, for the purposes of this office action, the word "via" will be disregarded in claims 3 and 4.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al. (5,584,670) in view of Todescat et al. (US 5,171,137).

6. Regarding claim 1, Kawaguchi et al. teach a variable capacity compressor for use in a refrigerating cycle comprising a swash plate (15) which is disposed rotatably, a piston (22) which is coupled to the swash plate, a cylinder (1a) which holds the piston (22) movably, a suction valve (60a) provided on the cylinder (1a) for sucking a refrigerant of the refrigerating cycle, and a discharge valve (61a) for discharging the refrigerant. Kawaguchi et al. further teach that "[a]s the pistons 22 move backward, the refrigerant gas in the suction chamber 3a forces the suction valves 60a open through the suction[sic] ports 4a and enters the cylinder bores 1a," (col. 5, ln. 44-47), implying that the suction valve has a valve body having flexibility attached to suction ports (4a) for sucking the refrigerant. Kawaguchi et al. do not teach that their valve bodies are press-contacted in an elastically deformed state against the valve seats of the suction ports. Todescat et al. teach a refrigeration compressor. In particular, Todescat et al. teach a suction valve structure which biases the valve away from the valve seat. Given this structure (in particular 71), when closed by chamber pressure, this valve body would be press-contacted in an elastically deformed state against the valve seat. Also, Todescat et al. teach that one of the problems solved by their valve is the "blade adhering sticking to the valve plate due to the presence of viscous lubricating oil," (col. 1, ln. 34-35). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the compressor of Kawaguchi et al. to include a

suction valve including a structure biasing it away from the seat as taught by Todescat et al., in order to improve valve response during operation.

7. Regarding claim 2, it would be obvious to one of ordinary skill to resize the compressor of the combination for any number of given applications, including applications calling for a valve body deflection of less than or equal to 1 mm, and experiencing a force of 1.8 N or less based on the desired size or load of the compressor.

8. Regarding claims 3 and 4, Kawaguchi et al. teach that the refrigerating cycle is for use in a car interior. Further, Kawaguchi teach several benefits of a clutchless compressor, such as reduced weight and cost, and avoidance of shocks during activation and inactivation of the clutch (col. 1, ln. 30-52). It would therefore have been obvious to one of ordinary skill in the art to form the compressor of the combination as a clutchless compressor, coupled to the motor vehicle engine without a clutch.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Da Costa (US 4,978,285). Da Costa discloses a valve structure wherein the valve body is press-contacted in an elastically deformed state against the valve seat.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Stimpert whose telephone number is (571) 270-1890. The examiner can normally be reached on Mon-Fri 8:00AM-5:00PM, Alt. Fridays, EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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DEVON C. KRAMER
PATENT EXAMINER

Devon Kramer
12/10/07